

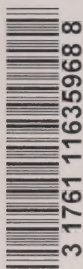


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Railway Captive Shippers

*A Staff Report to the
National Transportation Act
Review Commission*

April 1992



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RAIL CAPTIVE SHIPPERS

EXECUTIVE SUMMARY

Section 266 (3) (d) of the *National Transportation Act, 1987* (NTA, 1987) requires that the 1992 Comprehensive Review examine the extent to which shippers have achieved competitive access to railway transportation in the various regions of Canada.

The NTA, 1987 was intended to increase rail competition. In particular, the Act was designed to provide competitive transportation options for railway captive shippers. That is, shippers with no economical alternative to rail transportation or access to only one railway.

This analysis by National Transportation Agency staff addresses the question: who are railway captive shippers? It also provides information on five major commodity industries and describes their importance to railways, their degree of captivity and their contribution to the Canadian economy.

Captive shippers can be found in every region of Canada: the resource industries in the west; the urban industries in the large metropolitan centres; and industries located east of Saint John, New Brunswick.

Movements of bulk commodities such as coal, potash, lumber, sulphur, and pulp and paper account for nearly 40 percent of total rail traffic. These commodities are often captive to rail because of the type of product shipped (high weight, low value resource-based products) or because of the economics of long hauls to market. Resource industries are also often captive to one railway because many of their plants are located in remote regions.

An objective of the NTA, 1987 was to make railways more responsive to the market forces experienced by shippers. The relationship between railway revenue per tonne kilometre (yield) and commodity prices is one indication of the degree of responsiveness.

Prior to 1986, there was little relationship between the railway yield and the commodity prices for such products as coal, sulphur, potash, woodpulp, newsprint, and lumber. Decreases in commodity prices were not necessarily accompanied by decreases in yield. During the regulatory reform process, this lack of relationship was cited as showing the need for new competitive access mechanisms.



RAIL CAPTIVE SHIPPERS

With respect to coal, which represents approximately 20 percent of all traffic carried by CN and CP, the relationship between yield and commodity prices became much closer after 1986. A similar trend for sulphur and potash did not emerge until around 1988. Railway yield for potash, in particular, began to show a closer parallel to the commodity prices at that time. For the forest industries changes in trends have not been so clear.

INTRODUCTION

Section 266 (3) (d) of the *National Transportation Act, 1987 (NTA, 1987)* requires that the 1992 Comprehensive Review examine the extent to which shippers have achieved competitive access in the various regions of Canada. Access is affected by many things including choices within and between transportation modes for rates and services.

During the period from 1967 to 1987, there was enormous growth in the volume of resource commodities, such as coal, sulphur, potash, forest products, fertilizers and petrochemicals, which moved by rail for export. These commodities were generally captive to rail and the mines or plants that produced them were often captive to a single railway. Most resource-based shippers had no competing transportation services available to them and, therefore, were in a vulnerable position when bargaining for rates and services. The provisions for regulatory redress under the 1967 *National Transportation Act* were perceived to be cumbersome and largely ineffective.

For those shippers with few choices in rates and services, the 1987 legislation introduced a range of freight provisions intended to give them the benefits of railway competition. To help shippers captive to one railway gain access to a second railway, expanded interswitching limits and competitive line rate provisions were included. Confidential contracts also gave shippers and railways more pricing choices.

Specific provisions were also included to help shippers and carriers resolve their disputes in the absence of effective alternatives. Mechanisms such as final offer arbitration and a stream-lined public interest appeal provision gave shippers timely and cost effective alternatives to resolving disputes when negotiations fail.

This National Transportation Agency staff paper identifies some important captive shippers in Canada and the reasons for their captivity. It provides information on some of the major commodities captive to rail and describes their importance to railways and to the Canadian economy. It also provides aggregated revenue information to help evaluate the extent to which the provisions of the *NTA, 1987* have enabled captive shippers to take advantage of competitive transportation choices.

RAIL CAPTIVE SHIPPERS

DESCRIPTION

Under the *NTA, 1987*, a captive shipper is a shipper who has access to the lines of only one railway at origin or destination. Captivity can also apply to shippers with no economical alternative to rail transportation.

Captive shippers are found in every region of Canada: resource industries in the west and remote regions; urban industries in the large metropolitan centres; and industries located east of Saint John, New Brunswick, where only the lines of CN continue on to Nova Scotia. However, some groups of captive shippers are more crucially dependent on rail transportation than others, and so are more affected by their captivity and provisions for competitive access.

Most captive shippers produce relatively low-value, high-volume bulk products which must move a long distance to market. This group, known as resource-based shippers, are most often found in the remote areas of Canada -- particularly in the west and northern regions -- far from ports and the foreign markets they serve. These industries are captive to rail because of the weight, quantity and nature of the product shipped. Since CP Rail (CP) serves the southern part of Canada and CN North America (CN) takes a more northerly route, these industries are generally captive to one railway.

To some extent, captive shippers still exist in Canada's populated urban centres. Although many of these shippers have alternatives such as trucking, water or pipeline, the physical characteristics of some of their products are better suited to move by rail for either economic or safety reasons. Products such as hazardous chemicals often move by rail for public safety. Large dimensional products must also move by rail because weight restrictions may limit highway use or it may be uneconomical to ship by any other means.

Many of Atlantic Canada's shippers are also captive, since CP's Canadian rail services extend only as far east as Saint John, New Brunswick. Shippers located in Nova Scotia and the northern and eastern parts of New Brunswick wishing to move products in or out of those regions by rail are captive to the lines of CN. Of the 1990 combined CN/CP tonnage originating in Atlantic Canada, CN's market share was 84 percent. The greatest part of bulk commodities produced in Atlantic Canada such as coal, potash and gypsum have no rail alternative to CN. Gypsum accounted for 47 percent of Atlantic exports, while potash and coal accounted for 15 and 9 percent respectively.

A different concern about captivity - port captivity - may be emerging because of recent transportation developments. The increase in intermodal traffic combined with the recent rationalization of ocean carrier services on the east coast of North America are creating more competition between widely separated ports.

East coast American ports have lost market share to western U. S. ports over the past several years. In an effort to regain traffic, the Port of New York, for example, began a campaign to attract Toronto and Montreal container business. Other initiatives such as CP's purchase of the Delaware & Hudson Railway Company and Conrail's new daily double stack service between New York and Montreal have further increased competition between east coast ports such as New York and Halifax. The Port of Halifax's captivity to one rail carrier may affect its ability to respond to these challenges.

BACKGROUND

Before 1967, Canadian industry was largely concentrated in central Ontario and Quebec. Canada's western resource economy was relatively undeveloped, and Europe was the major off-shore market. An extensive rail system served central Canada, but was increasingly challenged by ships, pipelines and, above all, trucking companies. By 1967 rail regulation, designed to protect users in an age of virtual rail monopoly, was out of step with transportation developments. With the *National Transportation Act* in 1967, the railways were given greater pricing freedom so that they could compete in their major central Canadian markets.

Since 1967, export-oriented resource-based industries in western Canada have developed. Production of petrochemicals, sulphur, potash, and metallurgical coal has increased. Pulp mills have grown at a tremendous rate. Lumber milling in British Columbia has boomed due to increased demand in the U. S.

Most of these industries were captive to rail because of the weight, bulk and handling characteristics of their products. They also tended to be served by only one railway because of their plant locations. There were two provisions in the 1967 legislation which attempted to provide recourse against railway pricing practices.

RAIL CAPTIVE SHIPPERS

Under one section, shippers could apply to the Canadian Transport Commission, predecessor to the National Transportation Agency, to have a maximum freight rate set at the railway's variable cost of the movement plus 150 percent based on a 30,000 lb. load (roughly a truck load). The onus was on the shipper, however, to prove that there was no alternative, effective and competitive mode of transportation available other than the railway to which they were captive. This mechanism was unattractive to shippers because it was difficult to prove captivity and it prescribed a maximum rate that was extremely high as, for instance, rates based on 30,000 lb. carloads are inappropriate for coal moving in 100,000 lb. loads.

The other provision provided for a formal appeal against rail rates or services which were considered "prejudicial to the public interest". This mechanism was criticized by shippers as being very cumbersome, time consuming, legalistic, and expensive.

The 1987 legislation repealed the maximum rate provision and introduced a range of freight provisions intended to inject competition into captive shipper rate negotiations with railways. The public interest appeal section was retained, but in a more streamlined form as part of the family of dispute resolving mechanisms.

EXTENT OF CAPTIVITY IN CANADA

A goal of the *NTA, 1987* was to increase rail competition to meet the needs of Canadian shippers. Since the new legislation came into effect, Agency surveys of shippers have shown that price competition has increased for transportation generally in Canada. A previous Agency staff paper examined the use of the rail competitive access provisions by shippers to obtain competitive prices. For the purpose of this paper, five major bulk commodities, (coal, lumber, pulp and paper, potash and sulphur), were examined.

During the development of the 1987 legislation, the extent to which shippers were captive in Canada was examined in a report prepared for Transport Canada by Travacon Research Limited. On the basis of traffic data provided to Travacon by shippers and railways, the consultants concluded that, exclusive of *Western Grain Transportation Act (WGTA)* and intermodal traffic, approximately 73 percent of CN's and 58 percent of CP's originating revenues were derived from traffic captive to their respective lines. The five bulk commodities, coal, potash, lumber, sulphur, and pulp and paper represented nearly 40 percent of total 1990 rail traffic.

Coal

Each year, the largest Canadian coal mines -- those in Alberta and British Columbia -- account for nearly 80 percent of the total Canadian coal produced. Coal produced in western Canada is mainly exported to Japan and South Korea. Coal produced in eastern Canada (Nova Scotia and New Brunswick) is primarily used for domestic consumption. (See appendix 5. 4.)

Since coal is a low-value, high-volume bulk product, it is captive to rail. Most of Canada's coal mines are located in areas that are served by only one railway. The Coal Association of Canada has stated that there are only two coal mines currently operating in Canada that are not captive to one railway. Coal traffic accounts for nearly 20 percent of the total traffic moved by CN and CP.

Lumber

In 1989, the value of Canadian lumber shipments was over \$6. 7 billion. Export sales of this product reached over \$5. 5 billion. Although lumber production can be found in every province, British Columbia is the major producing province and the major supplier of softwood lumber to North American markets. For the number of saw and planing mills located in each province refer to appendix 5. 6.

The Council of Forest Industries of British Columbia (COFI) has stated that 70 percent of B.C. lumber shipments are captive to one railway line. The northern interior and central interior regions of B. C. account for 50 percent of total lumber production and 80 percent of their volume goes to the U. S. market. These mills are captive to either CN or to the provincial railway, BC Rail. Coastal and southern interior mills are less affected by captivity to one railway because shorter distances allow direct service by truck or water to particular markets and make bridging movements by truck to U. S. rail competition economically feasible.

Pulp and Paper

Canada is the world's third largest producer of pulp and paper products and by far the most important exporter. In 1990, Canadian newsprint producers accounted for 29 percent of world production and almost 60 percent of world exports. Canada is also the largest producer of paper grade market pulp, accounting for 27 percent of world capacity in 1990.

RAIL CAPTIVE SHIPPERS

Pulp and paper mills are concentrated in three provinces: Quebec with 36 percent of the mills operating in Canada (representing 36 percent of Canadian capacity); Ontario with 26 percent (representing 21 percent of capacity.); and British Columbia with 18 percent of the mills operating in Canada (representing 28 percent of capacity.) (See appendix 5. 9) Due to the volume and nature of the products shipped, these products are often captive to rail. Since mills are most often located in remote rural areas, they are usually captive to one railway. (See appendix 5.9.)

Potash

Potash production accounts for 55 percent of the total value of Canadian production from non-metal mines. Potash mines are concentrated in Saskatchewan. (See appendix 5. 11.)

Canadian potash markets consist of Canada, the United States, and the major off-shore markets of China, Japan, Brazil, South Korea and Indonesia. Thirty-nine percent of Saskatchewan's potash was exported through west coast ports and 38 percent was shipped to the U. S. Fifteen percent of Atlantic Canada's originating potash shipments were exported through eastern ports.

Potash is an important commodity to the railways, ranking third among commodities carried by rail in terms of tonnage and revenues. Potash shippers are captive to rail because of the economics of shipping long distances to markets and the nature of the product produced.

Sulphur

Canada is the world's largest exporter and the third largest producer of sulphur. Sulphur is mainly used in the manufacture of fertilizer, but also has a wide number of other industrial uses. They include the manufacture of paper, steel, chemicals and paints. Approximately 93 percent of the sulphur Canada produces comes from Alberta. The remainder comes from British Columbia, Ontario, Saskatchewan and Manitoba. Canada's major sulphur customers are located in countries in Africa, the Middle East, India, Australia, and New Zealand.

Because of the physical characteristics of the product produced, sulphur plants are captive to rail. Sultran Limited, an industry association set up to coordinate transportation for sulphur export for 19 producers in western Canada, has stated that all their plants are served by only one railway. Rail distances from origin to tidewater are between 640 and 1300 miles.

STATISTICAL TRENDS

An objective of the *NTA, 1987* was to make railways more responsive to the market forces experienced by shippers. The relationship between railway revenue per tonne kilometre (yield) and commodity prices is one indication of the degree of that responsiveness.

In the years prior to the introduction of the *NTA, 1987*, the trends in railway yield and commodity prices showed little relationship for the products of these bulk shippers. Decreases in commodity prices were not necessarily accompanied by decreases in yield. Shippers felt that railway pricing did not respond to the same market forces that they experienced. (See appendices.)

With respect to coal, which represents approximately 20 percent of all traffic carried by CN and CP, the relationship between yield and commodity prices became much closer after 1986. A similar trend for sulphur and potash did not emerge until around 1988. Railway yield for potash, in particular, began to show a closer parallel to the commodity prices at that time. For the forest industries changes in trends have not been so clear.

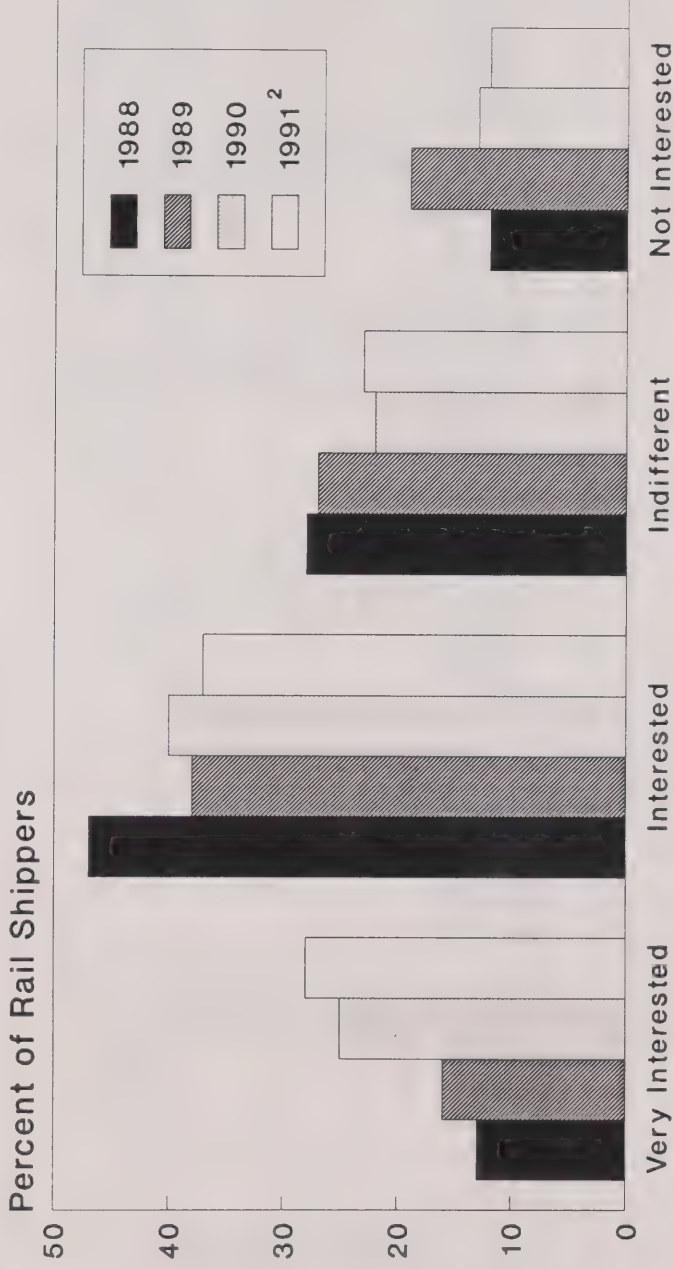
Shipper Indications of Railway Willingness to Compete¹, 1988 to 1991

Year	Percentage of Rail Shippers		
	Very Interested	Interested	Indifferent
1988	13	47	28
1989	16	38	27
1990	25	40	22
1991 ²	28	37	23
			Not Interested
			12
			19
			13
			12

Note: ¹ Based on Agency surveys of shippers (captive or otherwise).

² Preliminary

Shipper Indications of Railway Willingness To Compete¹, 1988 to 1991



Note: ¹ Based on Agency surveys of shippers (captive or otherwise).
² Preliminary

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National Transportation Agency of Canada
Source: Agency statistics

Railway Traffic and Revenue Statistics for Selected Commodities¹, 1984 to 1990

Year	Traffic (Million tonnes)			Revenues (Million \$)		
	CN/CP Total Tonnage	Selected Commodities	% of All Traffic	CN/CP Total Revenue	Selected Commodities	% of Total Revenues
1984	193.2	68.1	35.2	5,538	1,879	33.9
1985	183.1	67.8	37.0	5,433	1,790	32.9
1986	185.3	65.6	35.4	5,696	1,837	32.3
1987	197.5	67.8	34.3	6,165	1,922	31.2
1988	199.8	76.4	38.2	6,103	2,041	33.4
1989	183.2	70.0	38.2	5,595	1,837	32.8
1990	183.9	70.6	38.4	5,300	1,831	34.5

Notes: ¹ Coal, Lumber, Woodpulp, Newsprint, Potash and Sulphur.

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Sources: Statistics Canada, CN and CP Rail

Railway Coal Traffic Statistics CN/CP Combined, 1984 to 1990

Year	Traffic		Revenue			Coal Prices ¹ (1984=100)
	Coal Tonnage (Miln. Tonnes)	% of All Traffic	Coal Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)	
1984	30.2	15.6	612.6	11.1	100.0	100.0
1985	31.8	17.4	540.4	9.9	88.0	97.7
1986	30.3	16.4	616.7	10.8	104.7	95.5
1987	31.6	16.0	644.7	10.5	101.4	85.8
1988	37.5	18.8	708.5	11.6	94.3	81.7
1989	36.3	19.8	693.8	12.4	93.8	86.5
1990	35.6	19.4	693.9	13.1	97.3	85.4

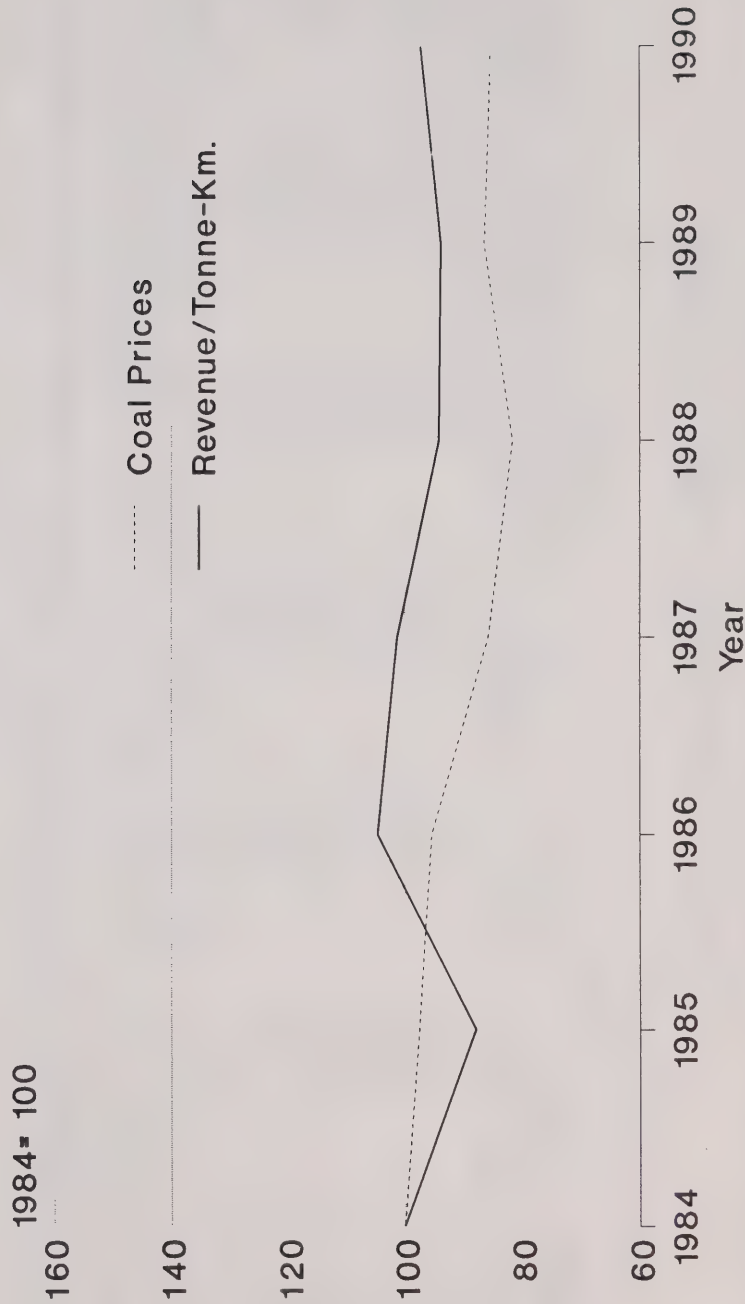
Other Coal Facts:

According to Statistics Canada, as of November 1991, the Canadian coal industry employed 10,000 workers and accounted for 0.2 percent of total Gross Domestic Product.

Notes: ¹ Index based on value of production at the producing establishment.

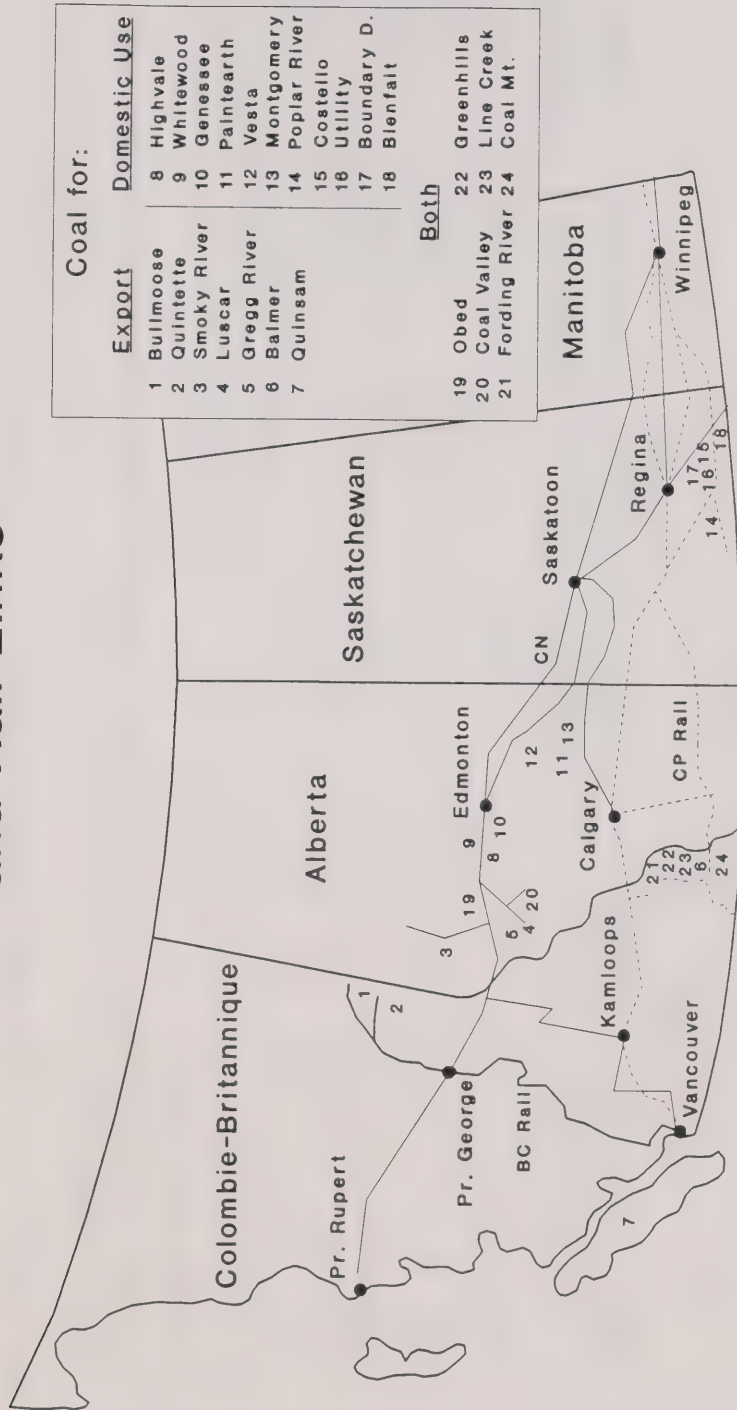
Comprehensive Review Staff Working Group
National Transportation Agency of Canada
Sources: Statistics Canada, CN and CP Rail

Coal Prices vs. Revenues per Tonne-Km. Indexed, 1984 to 1990



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Sources: Statistics Canada and Agency statistics

Western Canadian Coal Mines and Rail Links



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 Source: Coal Association of Canada and Agency statistics

Railway Lumber Traffic Statistics CN/CP Combined, 1984 to 1990

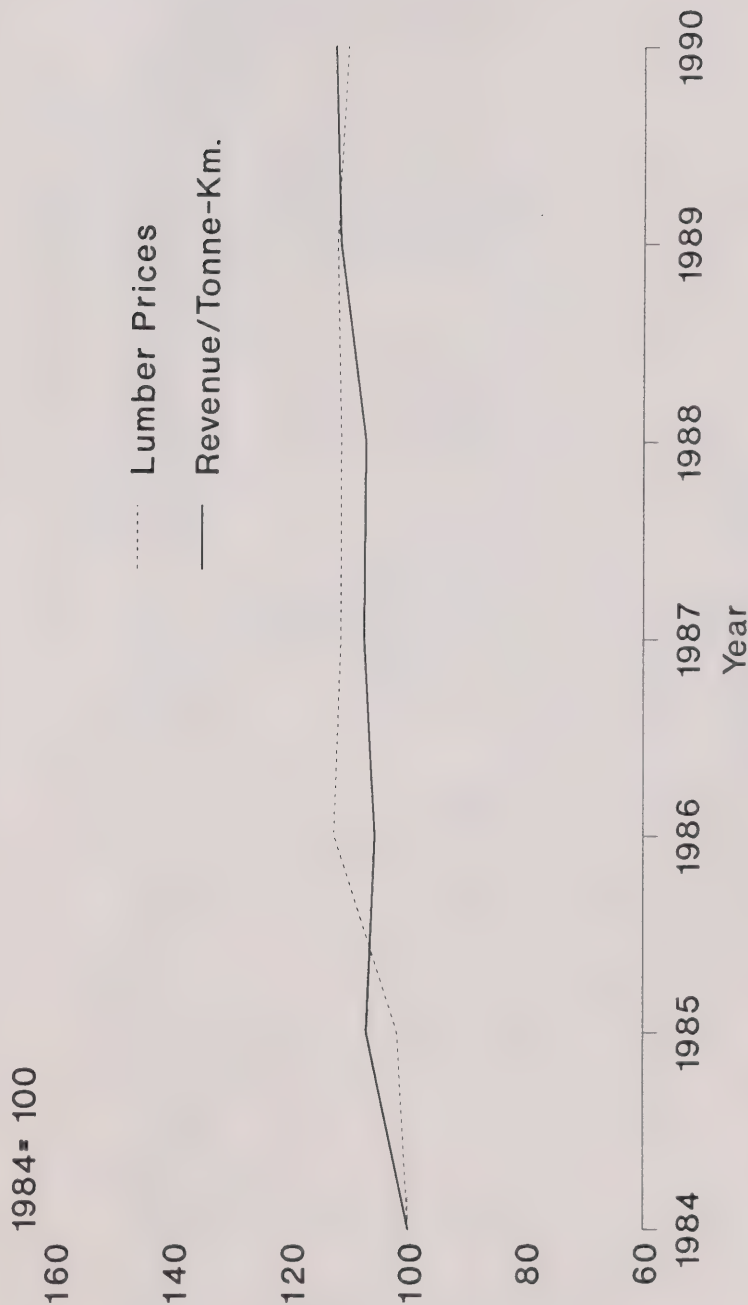
Year	Traffic		Revenue			Lumber Prices ¹ (1984=100)
	Lumber Tonnage (Miln. Tonnes)	% of All Traffic	Lumber Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)	
1984	7.7	4.0	403.4	7.3	100.0	100.0
1985	8.1	4.4	425.4	7.8	107.2	102.0
1986	7.8	4.2	402.7	7.1	105.8	112.7
1987	7.4	3.7	404.8	6.6	107.6	111.6
1988	7.6	3.8	392.6	6.4	107.3	111.6
1989	6.9	3.8	341.1	6.1	111.8	112.4
1990	6.4	3.5	301.2	5.7	112.7	110.5

Other Lumber Facts:

According to Statistics Canada, as of November 1991, the Canadian lumber industry employed 41,900 workers and accounted for 0.5 percent of total Gross Domestic Product.

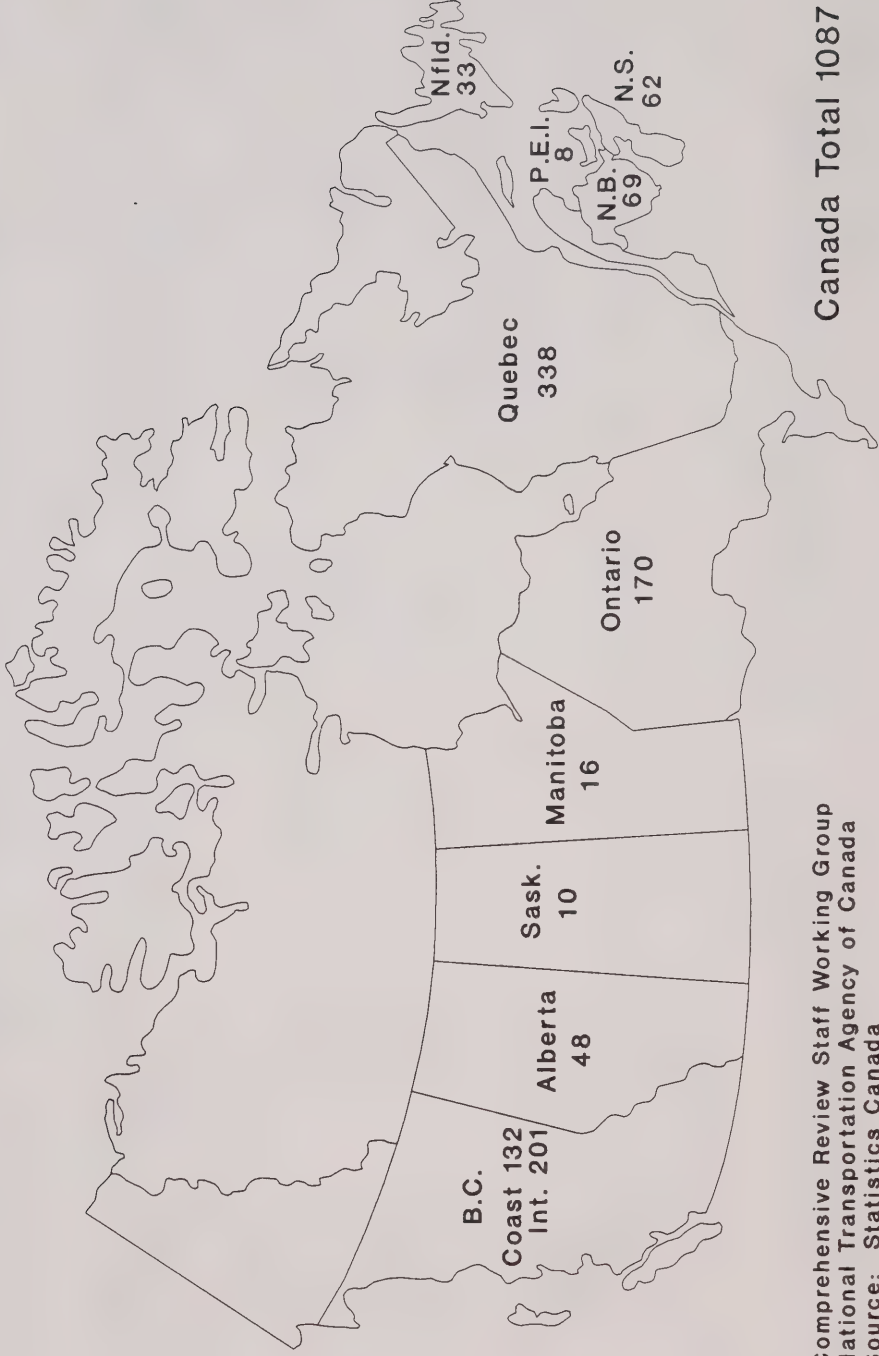
Notes: ¹ Industrial Products Price Index (IPPI) for "Lumber and Timber".

Lumber Prices vs. Revenues per Tonne-Km. Indexed, 1984 to 1990



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Sources: Statistics Canada and Agency statistics

Number of Sawmills and Planing Mills in Canada in 1988



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Source: Statistics Canada

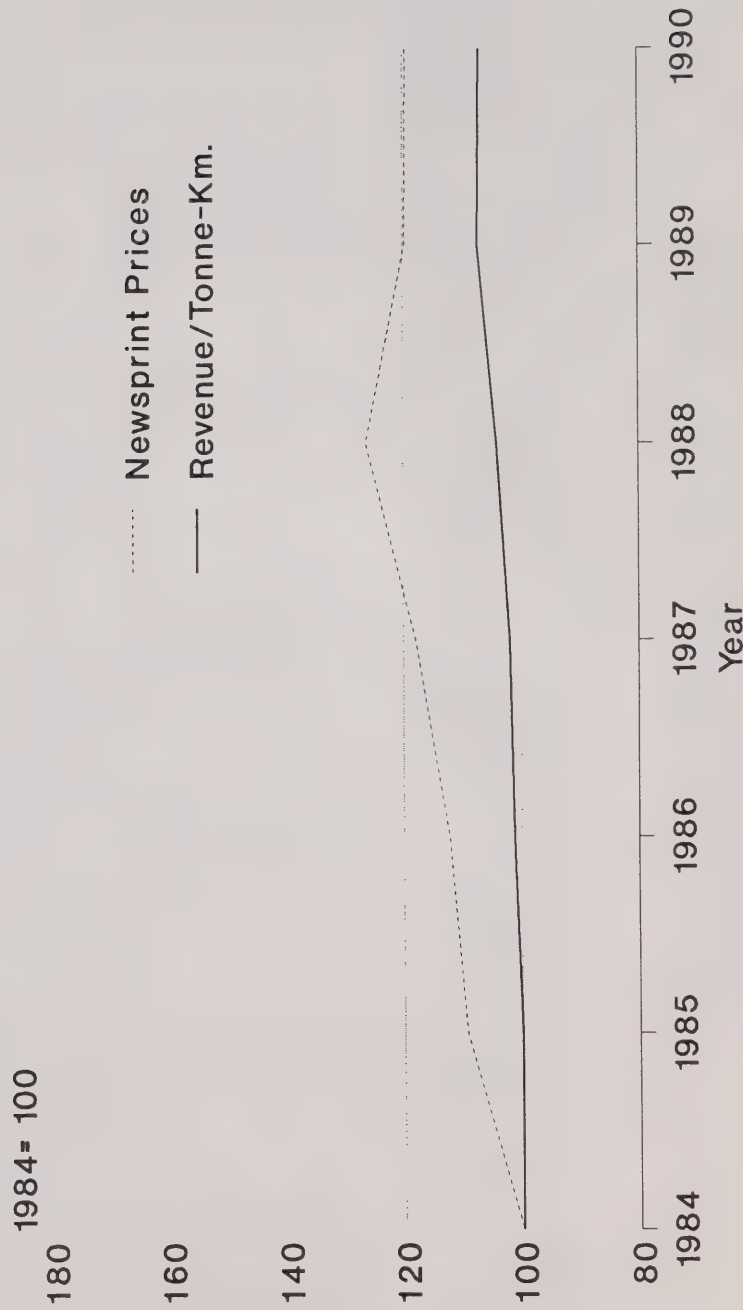
Railway Newsprint Traffic Statistics CN/CP Combined, 1984 to 1990

Year	Traffic		Revenue			Newsprint Prices ¹ (1984=100)
	Newsprint Tonnage (Miln. Tonnes)	% of All Traffic	Newsprint Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)	
1984	4.5	2.3	139.4	2.5	100.0	100.0
1985	4.5	2.5	136.9	2.5	100.0	109.4
1986	4.4	2.4	140.0	2.5	101.2	112.3
1987	4.4	2.2	148.2	2.4	101.9	118.0
1988	4.7	2.4	159.1	2.6	104.1	126.4
1989	4.5	2.5	149.0	2.7	107.3	119.8
1990	4.2	2.3	137.7	2.6	107.0	119.6

Notes: ¹ Industrial Products Price Index (IPII) for "Newsprint paper".

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Sources: Statistics Canada, CN and CP Rail

Newsprint Prices vs. Revenues per Tonne-Km. Indexed, 1984 to 1990



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National Transportation Agency of Canada
Sources: Statistics Canada and Agency statistics

Railway Woodpulp Traffic Statistics CN/CP Combined, 1984 to 1990

Year	Traffic		Revenue			Woodpulp Prices ¹ (1984=100)
	Woodpulp Tonnage (Miln. Tonnes)	% of All Traffic	Woodpulp Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)	
1984	4.8	2.5	165.5	3.0	100.0	100.0
1985	4.8	2.6	166.2	3.1	105.0	86.6
1986	5.1	2.8	184.6	3.2	113.1	96.1
1987	5.3	2.7	196.7	3.2	111.2	118.5
1988	5.3	2.7	205.3	3.4	105.3	138.0
1989	5.4	2.9	203.1	3.6	105.1	153.4
1990	5.4	2.9	199.6	3.8	103.0	146.3

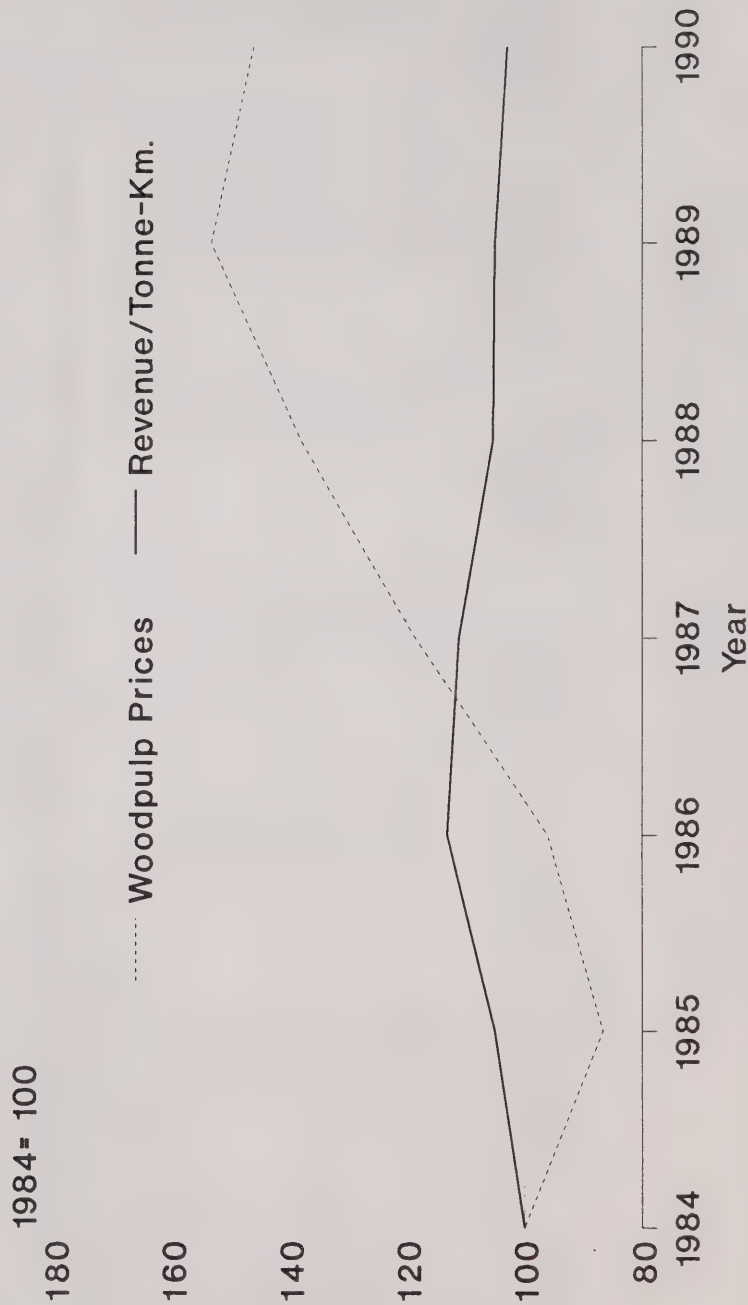
Other Pulp and Paper Facts:

According to Statistics Canada, as of November 1991, Canadian pulp and paper mills employed 71,500 workers and accounted for 1.3 percent of total Gross Domestic Product.

Notes: ¹ Industrial Products Price Index (IPPI) for "Pulp".

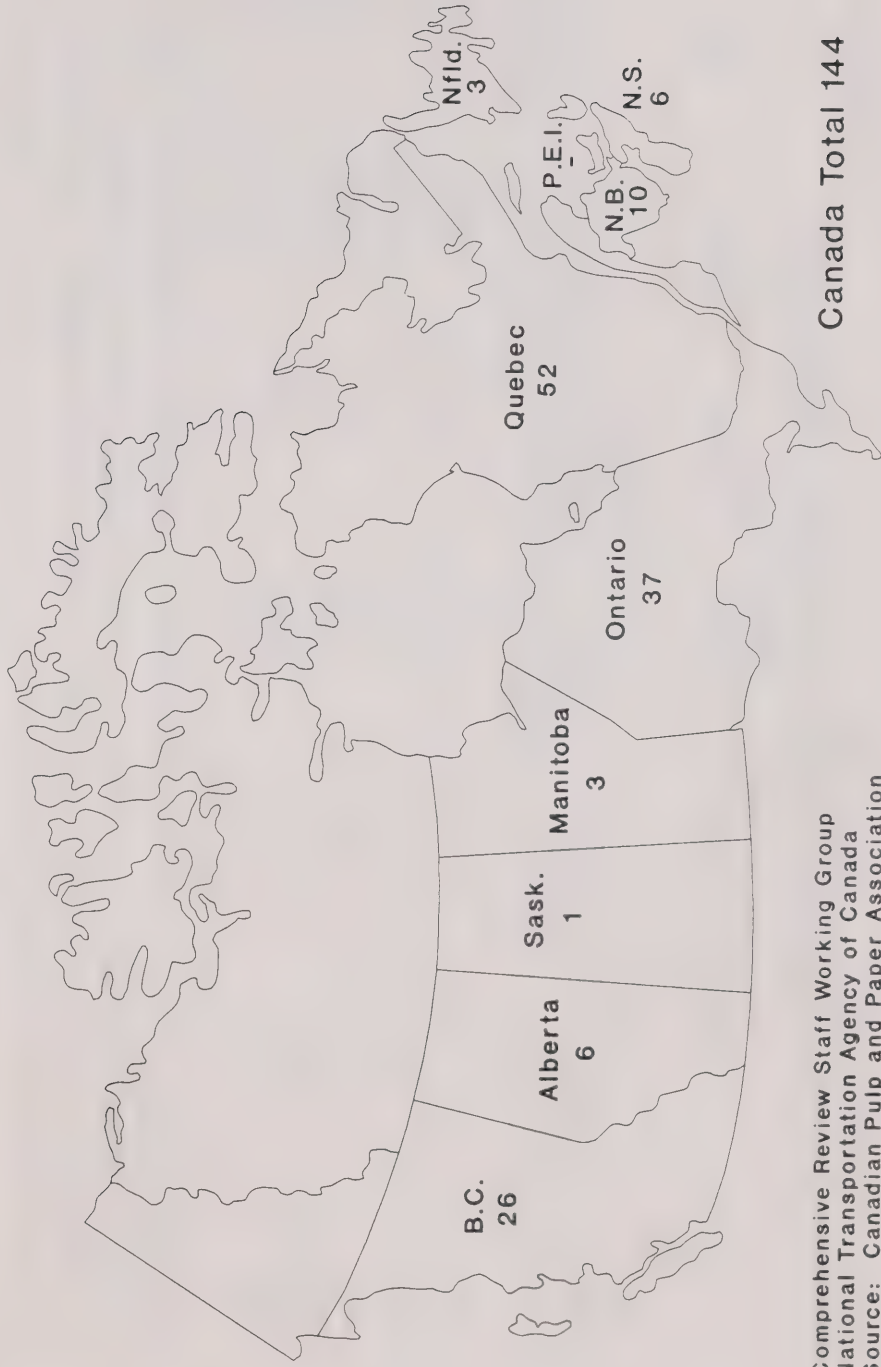
Comprehensive Review Staff Working Group
National Transportation Agency of Canada
Sources: Statistics Canada, CN and CP Rail

Woodpulp Prices vs. Revenues per Tonne-Km. Indexed, 1984 to 1990



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Sources: Statistics Canada and Agency statistics

Number of Pulp and Paper Mills in Canada in 1990



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Source: Canadian Pulp and Paper Association

Railway Potash Traffic Statistics CN/CP Combined, 1984 to 1990

Year	Traffic		Revenue			Potash Prices ¹ (1984=100)
	Potash Tonnage (Miln. Tonnes)	% of All Traffic	Potash Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)	
1984	11.0	5.7	313.0	5.7	100.0	100.0
1985	9.8	5.4	273.0	5.0	102.0	82.0
1986	10.3	5.6	270.2	4.7	102.5	75.1
1987	11.4	5.8	312.3	5.1	108.6	84.3
1988	12.4	6.2	339.0	5.6	107.9	124.3
1989	10.6	5.8	284.5	5.1	108.0	125.9
1990	11.2	6.1	300.9	5.7	104.8	114.0

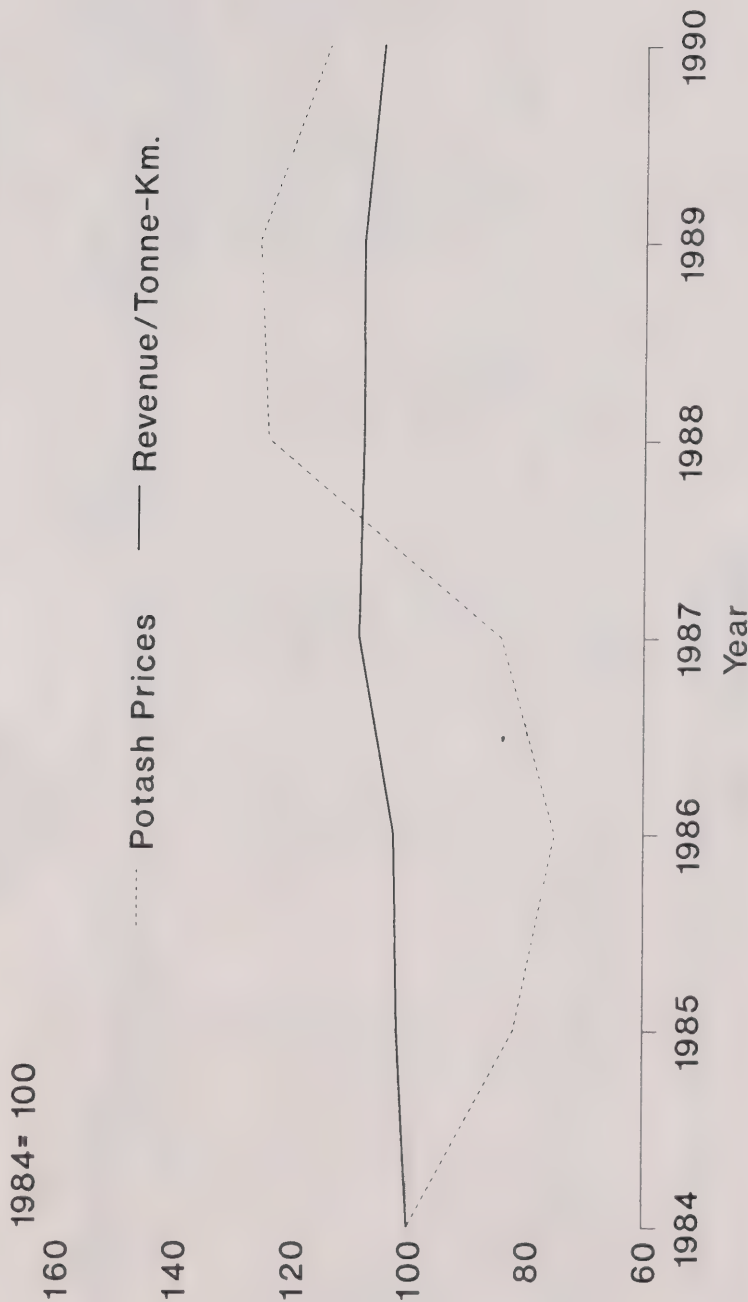
Other Potash Facts:

According to Statistics Canada, the Canadian potash industry employed 3,900 workers in 1989 and accounted for 0.1 percent of total 1991 Gross Domestic Product. Production reached 12.1 million tonnes in 1991 according to the Potash and Phosphate Institute.

Notes: ¹ Index based on value of production at the producing establishment.

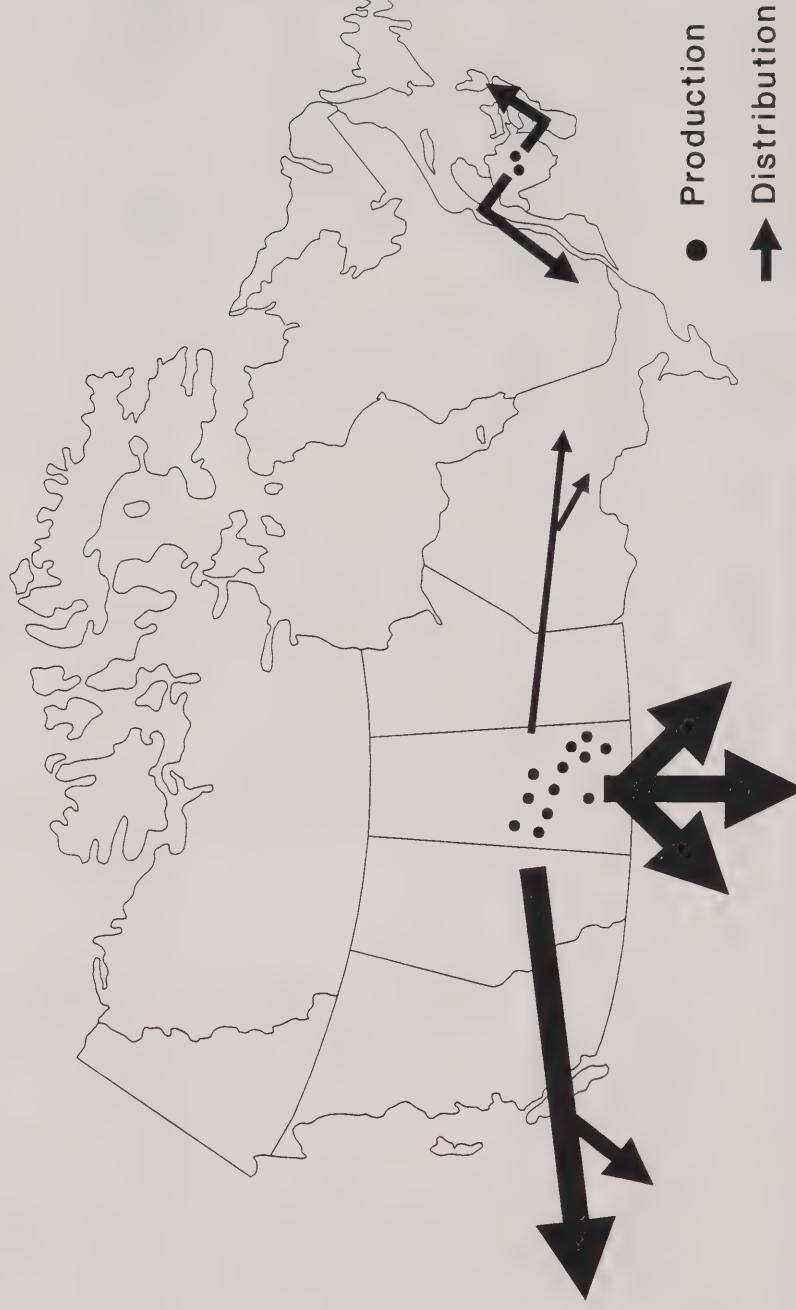
Comprehensive Review Staff Working Group
National Transportation Agency of Canada
Sources: Statistics Canada, CN and CP Rail

Potash Prices vs. Revenues per Tonne-Km. Indexed, 1984 to 1990



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National Transportation Agency of Canada
Sources: Statistics Canada and Agency statistics

Production and Distribution of Potash in Canada



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Source: Canadian Fertilizer Institute

Railway Sulphur Traffic Statistics CN/CP Combined, 1984 to 1990

Year	Traffic		Revenue				Sulphur Prices ¹ (1984=100)
	Sulphur Tonnage (Miln. Tonnes)	% of All Traffic	Sulphur Revenue (Million \$)	% of Total Revenues	Revenue per Tonne/Km. (1984=100)		
1984	9.9	5.1	245.4	4.4	100.0	100.0	
1985	8.8	4.8	248.1	4.6	100.0	173.7	
1986	7.7	4.2	223.0	3.9	97.7	168.8	
1987	7.7	3.9	215.2	3.5	102.7	123.4	
1988	8.9	4.5	236.7	3.9	100.4	101.8	
1989	6.3	3.4	165.6	3.0	95.9	100.1	
1990	7.8	4.2	197.6	3.7	89.8	86.9	

Other Sulphur Facts:

According to Sultran Limited, Canadian production of sulphur in 1987 reached 6.9 million tonnes.

Notes: ¹ Index based on value of production at the producing establishment.

Comprehensive Review Staff Working Group
National Transportation Agency of Canada
Sources: Statistics Canada, CN and CP Rail

